Weekly Report 6

Group Nr. 10

1 Weekly Progress

Completion of final video presentation and report.

- Siyuan, Shen: Final Video Part I. Feature Detector: Matcher and stereo rectification.

- Benjamin Rickels: Final Video Part II: (Block Matching) Merging reprojection and mesh generation into main codebase.

- Atilla Alpay Nalcaci: Final Video Part III: (Reprojection to 3D) Transformation of disparity maps to 3-channel images that represents 3D surfaces.

- Jiesheng Ding: Final Video Part IV: Normal estimation and mesh generation.

2 Problems

During the reprojection process, generated point clouds yielded inaccurate color and position values for certain data. We have overcome this issue by gathering the perspective transformation matrix (Q) from the stereo rectification phase and adjusting the focal length and camera optical center constraints. Additionally, our initial approach to mesh generation took quite long, thus we replaced with a simpler, but faster method. It works locally and exploits the "rectangular" structure of the 3D points that were obtained from the disparity map.
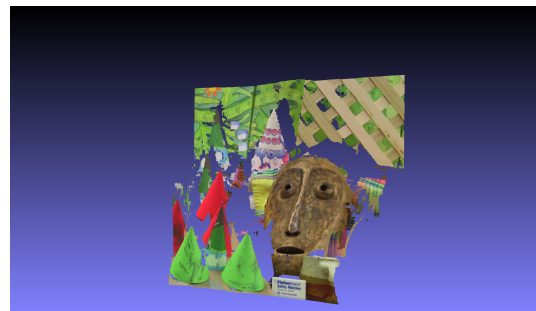
3 Results

Figure 1: Mesh straight on

Figure 2: Mesh at an angle